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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,859	01/29/2004	Yoshinori Watanabe	248217US6	2272

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EXAMINER	
BITAR, NANCY	

ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/09/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/09/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/765,859	WATANABE, YOSHINORI	
	Examiner	Art Unit	
	Nancy Bitar	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/31/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

2. Claims 10-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 10 defines a computer executable program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-

readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a computer executable program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. Claim 11 defines a recording medium embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a recording medium can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claims to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagaya et al. (US 2002/0030739) in view of Rui et al. (US 6,999,599).

As to claim 1, Nagaya teaches an image processing apparatus for extracting an object in an image, comprising; image obtaining means for obtaining image data of a specified image (TV camera, 200, figure 1); motion analyzing means for analyzing the motion of an object included in the image on the basis of the image data obtained by the image obtaining means (motion analysis means, 800, figure 1); image presenting means for presenting an image in a frame in which the object to be extracted from the image is specified (result output means, 600, figure 1); contour input accepting means for accepting the input of the contour of the object to be extracted from the image in the frame, which is presented by the image presenting (background judgment means, 700, figure 1) means, on the basis of the analysis result obtained by the motion analyzing means; and object extracting means for extracting the object in images in a plurality of frames on the basis of the contour of the object, the input of which is accepted by the contour input accepting means (motion object extraction means, 900, figure 1).

While Nagaya meets a number of the limitations of the claimed invention, as pointed out more fully above, Nagaya teaches extraction of the contour of an object in figure 13,1102 but fails to specifically teach the contour input accepting means for accepting the input of the contour of the object to be extracted from the image in the frame. Specifically, Rui et al. teaches the use of multi-hypothesis tracking using parametric contours where extracting active contour techniques to provide a deformable curve or snake which moves over an image while minimizing its potential energy, column 13, lines 45-68. Because the use of parametric contours of an object to facilitate efficient sample refinement. It would have been obvious to one of ordinary skill in the art to extract contour of an object in Nagaya extraction means in order to avoid background distraction and track efficiently and robustly in complex environment. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 2, Nagaya teaches an image processing apparatus according to claim 1, wherein the motion analyzing means (motion analysis means, 800, figure 1); includes: motion computing means for computing the motion of the object in the image relative to the background (background judgment means 700, figure 1); and area determining means for determining an extraction area in which the contour of the object in the image is to be extracted on the basis of the motion computed by the motion computing means(figure 6), wherein the contour input accepting means accepts the contour input in the extraction area determined by the area determining means (background true/false judgment means 750, figure 6).

As to claim 3, Nagaya teaches an image processing apparatus according to claim 2, wherein the image presenting means displays (display 300, figure 1) the extraction area determined by the area determining means (moving object extraction means, 900, figure 1).

As to claim 4, Nagaya teaches an image processing apparatus according to claim 2, wherein the motion computing means includes distance computing means for setting a plurality of feature points in the image and computing the distance between the adjacent feature points (figure 23, note that the window area of interest on the movie 1010 is exemplified by the slit 1030. For the processing in the background judgment means 700 and the moving object extraction means 900, however, essentially the same operations are undergone for an assembly of a plurality of adjacent pixels, even if the shape is different from the slit 1030).

As to claim 5, Nagaya teaches an image processing apparatus according to claim 4, wherein the area determining means includes:

comparison means for comparing the distance between the adjacent feature points in a temporally prior frame with the distance between the adjacent feature points in a temporally subsequent frame, the distances being computed by the motion computing means (note FIG. 5 shows the relation in the distance between the slit image of the background period and the current slit at each time, paragraph [0066]);

and setting means for setting, on the basis of the comparison result obtained by the comparison means, in the background of the image, a first area that is gradually covered by the object and a second area that gradually changes from being covered to

being non-covered by the object, means for determining a common merging region from the corrected two background differential images, paragraph [0020], and paragraph [0011-0013].

As to claim 6 and 7, Nagaya teaches in figure 20 an image processing apparatus according to claim 5, wherein the object extracting means extracts the object in a plurality of frames (1801, 1802, 1803) temporally subsequent to the frame (T_o, T_1, T_e) in which the input of the contour of the object is accepted by the contour input accepting means, and the image presenting means displays the first and second area serving as the extraction area (1812,1809, see paragraph [0134]. [0135]).

As to claim 8, Nagaya teaches an image processing apparatus according to claim 1, further comprising object displaying means for displaying the object extracted by the object extracting means (display, 300, figure 1).

Claim 9 differ from claim 1 only in that claim 1 is a system claim whereas; claim 9 is a method claim. Thus, claim 9 is analyzed as previously discussed with respect to claim 1 above.

Claims 10-11 differs from claim 1 only in that claim 1 is a system claim whereas; claims 10-11 are a computer claim. Thus, claims 10-11 are analyzed as previously discussed with respect to claim 1 above.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cornog et al (US 7,043,058) is cited to teach image processing based on motion vector maps by selecting portions of image with respect to motion compensated interpolation. Beardsley et al (US 7,164,784) is cited to teach method links edges in stereo images into chains that correspond to physical contours in a scene.

Inquiries

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

02/22/2007

JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER